

Amendments to the Claims

This listing of claims will replace all prior version and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) An image processing method comprising the step steps
of:
generating image data from an image;
obtaining one multi-resolution image data in each of a plurality of frequency
bands by converting the image data into multiple resolutions; and
quantifying a sense of contrast of an image ~~represented by image data~~, based on
the mutli-resolution image data.

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Currently Amended) An image processing method as claimed in Claim 1,
wherein the step of quantifying comprises the steps of:

*B1
contd*

~~obtaining multi-resolution image data in a plurality of frequency bands by
converting the image data into multiple resolutions;~~

generating a histogram of the multi-resolution image data in each of the
frequency bands, wherein said quantifying the sense of contrast is based on the
histogram in each of the frequency bands; and

extracting, as a light portion, an area in which pixel of the image values are equal
to or larger than a predetermined threshold value from the first multi-resolution image
data in the first frequency band.

*B1
cont'd*
quantifying the sense of contrast based on the histogram in each of the
frequency bands.

7. (Canceled)

8. (Currently Amended) An image processing method as claimed in ~~any one of~~
~~Claims~~ Claim 1 to 7, further comprising the step of carrying out image processing on
the image data based on the sense of contrast.

9. (Original) An image processing method as claimed in Claim 8, wherein the
image processing is at least one of tone conversion processing, frequency enhancing
processing, AE processing and chroma conversion processing.

10. (Currently Amended) An image processing method comprising the step of:
obtaining luminance data and color data representing luminance information and
color information of an image from image data;

obtaining one multi-resolution luminance image data and/or one multi-resolution
color image data in each of a plurality of frequency bands by converting the luminance
data and/or the color data into multiple resolutions;

quantifying the sense of contrast based on a luminance histogram and/or the
color histogram in each of the frequency bands; and

*BI
CONTR*
carrying out image processing for changing luminance information of an image
represented by image data on the image data based on color information of the image,
wherein the carrying out image processing comprises:

obtaining color data representing the color information from the image
data;

obtaining multi-resolution image data in a plurality of frequency bands by
converting the color data into multiple resolutions;

generating a histogram of multi-resolution image data in a lowermost
frequency band out of the multi-resolution image data in the plurality of frequency
bands; and

carrying out the image processing on the image data based on the
histogram.

11. (Canceled)

12. (Canceled)

13. (Canceled)

*B1
contd*
14. (Currently Amended) An image processing apparatus comprising:

generating means for generating image data from an image;

multi-resolution conversion means for obtaining one multi-resolution image data in each of a plurality of frequency bands by converting the image data into multiple resolutions; and

contrast-sense quantification means for quantifying a sense of contrast of an image ~~represented by image data~~, based on the multi-resolution image data.

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Currently Amended) An image processing apparatus as claimed in Claim 14, wherein the contrast-sense quantification means comprises:

~~multi-resolution conversion means for obtaining multi-resolution image data in a plurality of frequency bands by converting the image data into multiple resolutions;~~

histogram generating means for generating a histogram of the multi-resolution image data in each of the frequency bands, wherein said quantification means for quantifying the sense of contrast is based on the histogram; and

B' cent'd
~~quantification means for quantifying the sense of contrast based on the histogram.~~

extracting means for extracting, as a light portion, an area in which pixel values of the image are equal to or larger than a predetermined threshold value from the first multi-resolution image data in the first frequency band.

20. (Canceled)

21. (Currently Amended) An image processing apparatus as claimed in ~~any one of Claims~~ Claim 14 to 20, further comprising processing means for carrying out the image processing on the image data based on the sense of contrast.

22. (Original) An image processing apparatus as claimed in Claim 21, wherein the processing means carries out, as the image processing, at least one of tone conversion processing, frequency enhancing processing, AE processing and chroma conversion processing.

B1
cont'd

23. (Currently Amended) An image processing apparatus which carries out image processing on image data for changing luminance information of an image represented by the image data, based on color information of the image comprising:

conversion means for obtaining luminance data and color data representing luminance information and color information of an image from image data;

multi-resolution conversion means for obtaining one multi-resolution luminance image data and/or one multi-resolution color image data in each of a plurality of frequency bands by converting the luminance data and/or the color data into multiple resolutions;

histogram generating means for generating a luminance histogram and/or a color histogram, which are histograms of the multi-resolution luminance image data and/or the multi-resolution color image data in each of the frequency bands; and

quantification means for quantifying the sense of contrast based on the luminance histogram and/or the color histogram in each of the frequency bands;

conversion means for obtaining color data representing the color information of the image from the image data;

multi-resolution conversion means for obtaining multi-resolution image data in a plurality of frequency bands by converting the color data into multiple resolutions;

histogram generating means for generating a histogram of multi-resolution image data in a lowermost frequency band out of the multi-resolution image data in the plurality of frequency bands; and

processing means for carrying out the image processing on the image data based on the histogram.

*B1
contd*
24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Currently Amended) A computer-readable recording medium storing a program to cause a computer to execute an image processing method comprising the procedure steps of:

generating image data from an image;

obtaining one multi-resolution image data in each of a plurality of frequency bands by converting the image data into multiple resolutions; and

quantifying a sense of contrast of an image represented by image data, based on the multi-resolution image data.

28. (Canceled)

29. (Canceled)

30. (Canceled)

B1 cont'd
31. (Canceled)

32. (Currently Amended) A computer-readable recording medium as claimed in Claim 27, wherein the procedure of quantifying the sense of contrast comprises the procedures steps of:

~~obtaining multi-resolution image data in a plurality of frequency bands by
converting the image data into multiple resolutions;~~

generating a histogram of the multi-resolution image data in each of the
frequency bands, wherein quantifying the sense of contrast is based on the histogram in
each of the frequency bands; and

extracting, as a light portion, an area in which pixel values of the image are equal
to or larger than a predetermined threshold value from the first multi-resolution image
data in the frequency bands ~~quantifying the sense of contrast based on the histogram in
each of the frequency bands.~~

33. (Canceled)

34. (Currently Amended) A computer-readable recording medium as claimed in ~~any one of Claims Claim~~ 27 to 33, further comprising the procedure of carrying out image processing on the image data based on the sense of contrast.

*B1
cont'd*
35. (Original) A computer-readable recording medium as claimed in Claim 34, wherein the procedure of carrying out the image processing is the procedure of carrying out at least one of tone conversion processing, frequency enhancing processing, AE processing and chroma conversion processing.

36. (Currently Amended) A computer-readable recording medium storing a program to cause a computer to execute an image processing method for carrying out image processing for changing luminance information of an image represented by image data on the image data, based on color information of the image comprising the steps of:

obtaining luminance data and color data representing luminance information and color information of the image from the image data;

obtaining multi-resolution luminance image data and/or multi-resolution color image data in a plurality of frequency bands by converting the luminance data and/or the color data into multiple resolutions;

generating a luminance histogram and/or a color histogram, which are
histograms of the multi-resolution luminance image data and/or the multi-resolution
color image data in each of the frequency bands; and

quantifying the sense of contrast based on the luminance histogram and/or the
color histogram in each of the frequency bands;

obtaining color data representing the color information from the image data;

obtaining multi-resolution image data in a plurality of frequency bands by

*B'ld
cont'd* converting the color data into multiple resolutions;

generating a histogram of multi-resolution image data in a lowermost frequency
band out of the multi-resolution image data in the plurality of frequency bands; and

carrying out the image processing on the image data based on the histogram.

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (New) An image processing method as claimed in Claim 10, wherein the
step of quantifying comprises the steps of:

setting a pattern for image processing to be carried out on the image data based
on the color histogram.

41. (New) An image processing apparatus as claimed in Claim 23, wherein the step of quantifying comprises the step of:

*B1
concl.* pattern setting means for setting a pattern for image processing to be carried out on the image data based on the color histogram.

42. (New) A computer-readable recording medium as claimed in Claim 36, wherein the step of quantifying comprises the step of:

setting a pattern for image processing to be carried out on the image data based on the color histogram.
